ASHTON HATCHERY
ANNUAL REPORT

INTRODUCTION

Ashton Hatchery is located in Fremont County, Idaho,approximately two miles (3.2 km) southwest of the small community of Ashton, Constructed in 1920, Ashton Hatchery serves as a "speciality staton" rearing eight species of trout and salmon, including rainbow, cutthroat, brook trout, brown trout, golden trout, grayling, kokanee, and Atlantic salmon.

The majority of fish produced at Ashton are fry and fingerlings (1 to 6 inches), distributed throughout Idaho as part of various put-grow-and-take management programs. Catchable size (9 to 10 inches) trout are also reared at Ashton and distributed locally in waters managed on a put-and-take basis.

HATCHERY IMPROVEMENTS

Major hatchery improvements included replacing three overhead doors on the hatchery garage and one garage door on Residence One. New carpeting was installed in both residences, and the pumphouse was installed. A load of gravel was used to repair hatchery roads.

Other minor improvements consisted of cutting down two large, dead trees behind Residence One and installing a new hatchery entrance sign. Wooden covers were built for the headraces, and new aluminum screens were constructed for the hatchery vats. A large section of the irrigation line was repaired, and willows were cut down over the spring pond a new John Deere lawn tractor, with rear bagger attachement, was purchased for more efficient lawn maintenance.

FISH CULTURE TECHNIQUES

All fish, with the exception of grayling, were initially fed a Rangen's soft-moist diet because of the palatability of soft-moist feed. Swim-up grayling were started on Bio-Products semi-moist feed because of their small size, and then converted over to Rangen's soft-moist after a few weeks. Catchables and holdover rainbows are switched to a less expensive dry diet when they are approximately 5 inches long, while all other species remain on soft-moist feed until they are planted.

Lights over the nursery vats were maintained at a low intensity because growth rates declined in brook trout, brown trout, and Henrys Lake cutthroat when they were moved to an unshaded environment outside. This techinique is thought improve growth rates, conversions, and feed responses in these light intolerant species.

FISH PRODUCTION

A total of 1,094,769 fish (26,335 pounds) were produced at Ashton Hatchery this year, consisting of 1,043,477 fingerlings (13,510 pounds) and 51,292 catchables (12,825 pounds). The total number of fish produced was up slightly from last year, and the majority of fish requests were met or exceeded (Table 1). Golden trout requests exceeded the number of eggs received (Table 2), while grayling experienced poor survival at the swim-up/fry stage of development.

Ashton produced enough rainbow catchables to meet hatchery production goals, but not enough to fulfill all regional stocking requests. Therefore, 40,459 rainbow catchables (14,358 pounds) were transferred in from American Falls Hatchery for redistribution by Ashton Hatchery personnel (Table 3).

All of the fish reared at Ashton (except kokanee) were received as eyed eggs from other hatcheries (Table 2). Kokanee were spawned at Moose Creek and the green eggs transferred **back** to Ashton for incubation and rearing.

A total of 30,813 pounds of feed was used to produce 26,335 pounds of gain, for an average conversion of 1.17:1. Production costs (excluding capital outlay) totaled $112,200.00, with $12,341.12 spent on fish feed and the remaining $99,858.88 spent on general hatchery operations and personnel costs. Average cost per pound of fish produced was $4.26 (Table 4).

FISH HEALTH

Department personnel from the Eagle Fish Health Laboratory conducted fish health inspections throughout the year (Table 5). Fish were tested for viral, bacterial, and protozoan pathogens, but bacterial gill disease was the only pathogen diagnosed. Outbreaks of gill disease occurred in virtually every species reared, with lab results confirming cases in brown trout, kokanee, and Atlantic salmon (Table 5). Treatments with copper sulfate or Chloramine-T proved successful in alleviating the gill problems as they arose.

Over 20 rainbow trout from the hatchery settling pond were sent to the Eagle Lab and found to be negative for whirling disease.

Adult kokanee were thoroughly tested for bacterial kidney disease (BKD) this year, after destroying all of last year's stocks because of this pathogen. Fortunately, no BKD was diagnosed in the Moose Creek kokanee this year, and all the eggs were retained.

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Table 1. Fish requested and produced, Ashton Hatchery 1988-89.

Species	Size	No. request	No. produced	Lbs. produced	% goal
Rb	2-3"	196,000	205,161	4,105	105%
K1	6-8"	100,000	81,790[a]	3,533	82%
K1-2	3-4"	90,000	91,155[a]	1,681	101%
BN	3-4"	100,000	97,260	2,730	97%
BK-C	3-4"	205,000	297,118	1,160	145%
BK-NC3	2-4"	225,000	233,020	1,910	104%
KE	1-2"	31,250	9,661	3.9	31%
GR	1-2"	9,250	5,180[b]	72.2	56%
GN	1-2"	956,500	1,020,345	15,195.1	106.6%
TOTALS					

[a]additional fish transferred in from other hatcheries. [b]includes 1+ age fish for Baker Lake.

Table 2. Fish or eggs received and survival to stocking, Ashton Hatchery 1988-89 .

Species	Strain/source	Date rcv'd	No. rcv'd	No. stocked	% surv.
RA(catch.)	ENNIS NFH	10/88[a]	39,074	35,723	91.4%
RA(fing.)	ENNIS NFH	12/88	299,472	205,161	
R1	WYO.-DANIEL	2/89	90,000	+54,295[b]	66.6%
C3	HENRYS LAKE	5/89	320,019	297,118	92.8%
KE	DEADWOOD	10/89	344,674	233,020	67.6%
BK-C	HENRYS LAKE	12/88	35,961	26,377	73.3%
BK-N	HENRYS LAKE	12/88	94,560	70,883	74.9%
GR	WYO.-DANIEL	5/89	70,400	9,661	13.7%
GN	WYO.-DUBOIS	10/88[a]	1,279	1,180	92.2%
GN	BAKER LAKE	7/89	772	700[b]	90.7%
GN	WYO.-DUBOIS	7/89	4,968	4,000	80.5%
AS	MAINE	2/89	29,822	21,419[b]	71.6%
BN	SPR. CR.-MT	10/88	74,670	54,833	73.4%
K1-2	SKANE	1/89	150,000	66,200	44.0%
K1	ENNIS NFH	1/89	16,666	15,569	93.4%
TOTAL			1,572,337	1,096,139	69.7%

[a]on hand beginning of fish year.
[b]on hand at end of fish year.

ASHTAB

Table 3. Total fish stocked, Ashton Hatchery, 1988-89.

Code	Species	Size (in)	Number	Pounds
RA-1-7	ARLEE RB 87	10.5	35,723	15,572
RA-8-1	ARLEE RB 88	3.7	205,161	4,105
R-4	AM FALL RB	9.6	40,459	14,358
K1-1-9E	KAMS-9	8.4	15,590	3,250
K1-2-8S	KAMS-8	2.3	66,200	283
BN-1-8	BROWN TRT.8	3.9	91,155	1,681
GN-1-8	GOLDEN-8	5.6	1,180	73
GN-1-9	GOLDENS-9	1.3	4,000	1.2
C3-1-9	CUTTS 89 STK	2.5	297,118	1,160
BK-1-8C	TEM BKS	4.5	26,377	733
BK-1-8N	NAT BKS	4.5	70,883	1,997
KE-1-8	KOKANEE 88 S	' 3.0	233,020	1,910
GR-1-9	GRAYLING 89	1.3	9,661	3.6
TOTALS			1,096,527	45,127

Table 4. Production costs by species and size, Ashton Hatchery, 1988-89.

Lot	Size	No. prod.	Weight	% budget	Total cost	
AS-1-9	2.63	23,752	143.34	0.86%	$965	$6.73
R1-1-9W	4.42	54,398	1,873.85	7.94%	8,909	4.75
GN-1-9	1.33	894	0.63	0.01%	11	17.46
RA-1-8	3.68	205,161	4,105.0	17.76%	19,927	4.85
BK-1-8C	4.54	26,377	732.7	3.96%	4,443	6.06
BK-1-8N	4.55	70,883	1,997.0	8.96%	10,054	5.03
C3	2.54	297,118	1,160.62	5.12%	5,744	4.95
BN	3.96	54,833	1,228.0	2.30%	2,580	2.10
KE	3.01	233,020	1,901.0	17.46%	19,591	10.25
GN-1-8	5.61	1,180	73.0	3.90%	4,375	59.93
K1-2	2.27	66,200	283.0	0.73%	819	2.89
GR	1.25	9,661	2.7	0.09%	101	37.40
SUBTOTALS		1,043,477	13,509.84	69.09%	77,519	5.74
RA-1-7	10.5	35,723	10,533.0	27.86%	31,259	2.96
K1	8.4	15,569	2,292.0	3.05%	3,422	1.49
SUBTOTALS		51,292	12,825.0	30.91%	34,681	2.70
TOTALS		1,094,769	26,334.84	100.00%	$112,200	$4.26

ASHTAB

Table 5. Pathology test results, Ashton Hatchery, 1989.

Species/strain	Sample date (89)	VH	VP	VE	BK	BR	BF	PW	PX	PC	BG
Rainbow (RA)	4-24	-	-	-	-	-	-	-	x	-	x
Rainbow (RW)	9-19	x	x	x	x	-	-	x	x	x	x
Kamloops (K1)	4-25	x	x	-	x	x	x	x	x	x	x
Kamloops (K2)	3-7	x	x	x	x	x	x	x	x	x	x
Settling pond (Rbt)	7-17	x	x	x	x	x	x	-	x	x	x
Settling pond (Rbt)	8-30	x	x	x	x	x	x	-	x	x	x
Browns (Mt)	2-23	x	x	x	x	x	x	x	x	x	+
Browns (Mt)	3-7	x	x	x	x	-	-	x	x	x	x
Browns (Mt)	4-27	x	x	-	x	x	x	x	x	x	x
Kokanee (KeM)	2-23	x	x	x	x	x	x	x	x	x	+
Kokanee (KeD)	4-24	-	-	-	-	-	-	x	-	-	x
Kokanee (KeM)	8-30	-	-	x	-	x	x	x	x	x	x
Brook (BkT)	8-30	-	-	x	-	x	x	x	x	x	x
Brook (BkN)	8-30	-	-	x	-	x	x	x	x	x	x
Atlantic salmon (AS)	4-25	-	-	-	x	x	x	x	x	x	x
Atlantic salmon (AS)	7-6	x	x	x	x	x	x	x	x	x	+

Legend:

VH = IHNV, infectious hematopoietic necrosis virus.
VP = IPNV, infectious pancreatic necrosis virus.
VE = EIBS, erythrocytic inclusion body syndrome virus.
BK = bacterial kidney disease agent, Renibacterium salmoninarum.
BR = enteric redmouth bacterium, Yersinia ruckeri.
BF = bacterial furunculosis, Aeromonas salmonicida.
PW = whirling disease agent, Myxobolus (Myxosoma) cerebralis.
PX = PKX, agent of PKD, proliferative kidney. disease.
PC = Ceratomyxa shasta, agent of ceratomyxosis.
BGD = Bacterial gill disease.

+ = Positive results
- = Negative results
x = Testing/sampling not feasible

ASHTAB

SPECIAL PROJECTS

Kokanee

For the third consecutive year, Ashton Hatchery personnel operated a kokanee trap on Moose Creek, a tributary to the North (Henrys) Fork Snake River. The trap was located downstream from Big Springs Road, approximately 3 miles from Mack's Inn.

Trapping began on August 14 and continued through September 12 (Figure 1). Only 341 kokanee were trapped this year, as compared to 4,000 last year. Island Park Reservoir kokanee populations were down, and, consequently, those fish that returned to Moose Creek were very large. Length frequency (fork length) of trapped fish ranged from 12.7 inches (325 mm) to 19.3 inches (490 mm). Mean fork length of females trapped was 17.2 inches (436 mm), while mean fork lengths of males were slightly smaller at 17.0 inches (434 mm). Most males were larger than the females, but numerous small males in the sample made the average length smaller.

Spawning operations began on August 23 and continued until September 5, with 102 females spawned for 92,776 green eggs (Table 6). Spawning began on an every-other-day basis, but was switched to two times per week because of time constraints. (Several over-ripe females were observed when spawning occurred only twice per week, so next year hatchery personnel will go back to spawning every other day.) Because of the poor kokanee run in Moose Creek, an additional 410,000 green kokanee eggs were received from Deadwood Reservoir to help meet production goals.

Kokanee fry from the 1988 Brood Year were released in Moose Creek at the trap site. A morpholine drip was used 14 days prior to release and 7 days after to ensure that these fish would imprint on Moose Creek. Fry releases occurred in late June to coincide with zooplankton blooms in Island Park Reservoir.

Brook Trout

All Temiscamie strain brook trout received an adipose clip for both strain and year-class identification. To ensure desired imprinting on the Henrys Lake fish ladder, these fish were also treated with a morpholine drip for 4 days prior to release and 4 days after.

Cutthroat

A total of 125,000 cutthroat were marked with an adipose clip prior to their release in the Teton River and its tributaries. In addition, 25,000 cutthroat were marked with a right ventral fin clip and released in Spring

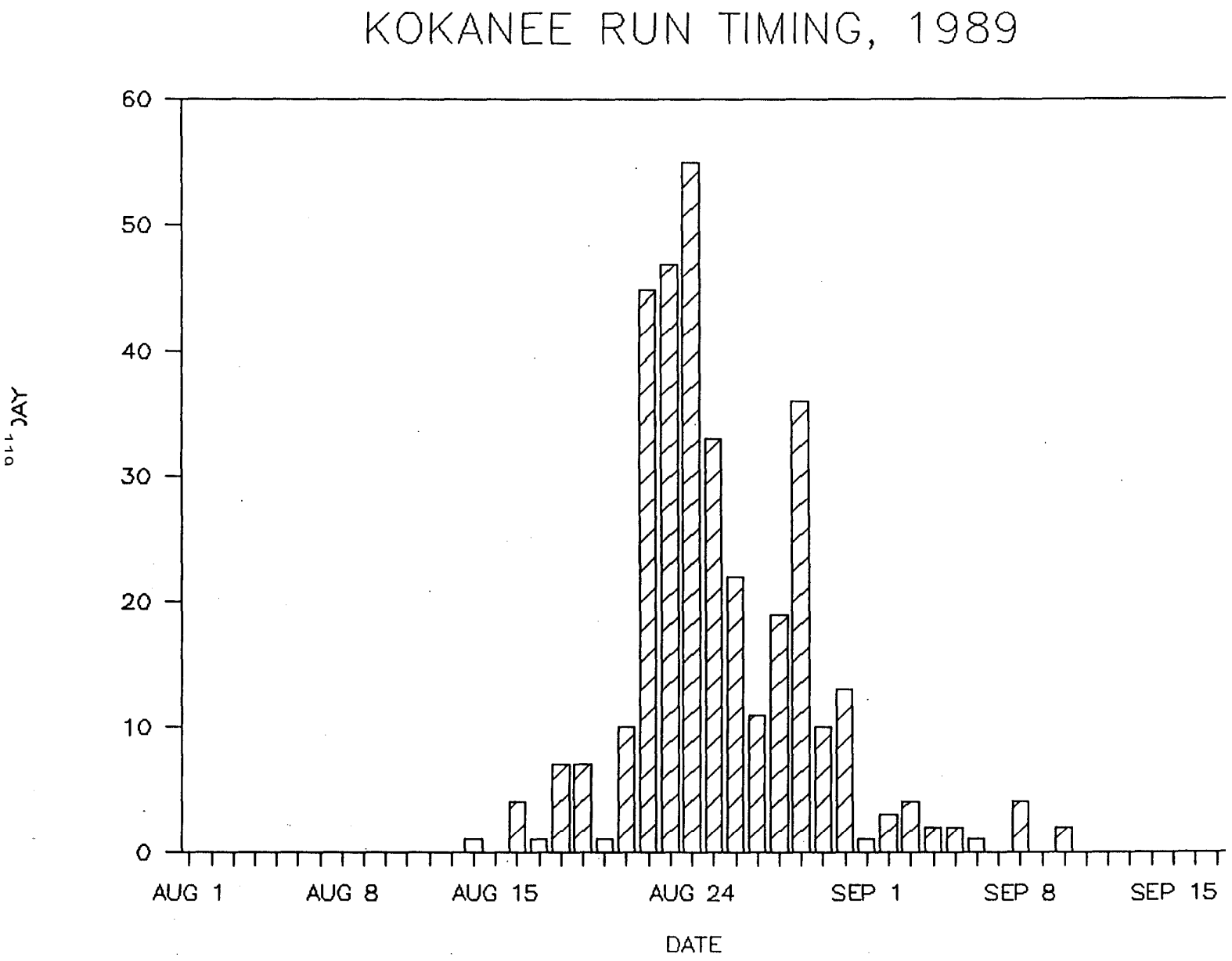

Figure 1. Kokanee run timing, Moose Creek, 1989.

Table 6. Results of kokanee spawning operations at Moose Creek, 1989.

Date	Females spawned	Eggs collected	Average fecundity	Percent eye-up
8-23-89	5	4,896	979	77.1
8-24-89	.2	1,450	725	78.8
8-30-89	45	44,333	986	76.7
9-1-89	17	19,271	1,134	74.2
9-5-89	25	22,826	913	76.4
TOTALS	94	92,776	987	76.3

ASHTAB

Hollow. This work was done as part of a research project conducted by Department personnel to evaluate survival and contribution to the fishery of hatchery-raised cutthroat trout and to evaluate stocking site suitability.

Another 50,000 cutthroat were marked with an adipose fin clip and released in the Henrys Fork near Beaver Dick campground to evaluate their survival and contribution to this fishery.

Grayling

Grayling experienced poor survival at Ashton this year. Eggs arrived unpicked and started hatching the following day. Possible inventory errors, poor egg quality, cannibalism, and unseen mortality all could have resulted in the 13.7% survival. (Cannibalism was observed when the grayling experienced a large size difference after a couple of months on feed.)

The mean monthly length increase was 0.41 inches, while the conversion was 1.85:1 (Table 7). Grayling were fed Biodiet semi-moist starter feed for the first three weeks, then switched to Rangen's soft-moist feed. Kindschi and Barrows (1989) reported survival of grayling during the first 14 days on Biodiet feed was 26%, while grayling fed BioKyowa feed during the same period had a survival rate of 81%. Ashton Hatchery personnel will try BioKyowa feed next year in an effort to increase survival.

Atlantic Salmon

A total of 29,822 Atlantic salmon were received from Grand Lake State Hatchery in Maine on February 17, 1989. The eggs were in excellent condition, and currently 21,419 fish are on hand for stocking in June, 1990. . Inside rearing vats were covered, and fish were fed using Fiap's automatic fry feeders at the head of the vats. The fish were moved outside to a covered raceway and two Fiap's feeders installed on the covers. Two baffles were mounted in the raceway to facilitate cleaning, and the salmon are basically maintenance-free.

Golden Trout

Golden trout are being reared at Ashton Hatchery primarily in an attempt to establish an Idaho spawning population at Baker Lake, and also for stocking several mountain lakes. A total of 1,180 6-inch fish from the 1988 Brood Year were planted in Baker Lake, while 4,000 of the 1989 Brood Year were planted in mountain lakes (Table 2). Approximately 700 goldens are on hand and will be stocked in Baker Lake in the spring of 1990. The mean monthly length increase for golden trout was .41 inches, while the average conversion was 1.29:1.

Table 7. Comparative growth rates and feed conversions for all species reared at Ashton Hatchery, 1988-89.

Species	Average monthly length increase	Average conversion
Rainbow (RA7)	0.56	1.33
Rainbow (RA8)	0.60	0.94
Rainbow (Wyo)	0.54	0.78
Kamloops (K1)	0.56	1.04
Kamloops (K2)	0.43	1.14
Brown	0.44	1.32
Brook (Temis)	0.48	0.88
Brook (Nat)	0.45	0.85
Cutthroat	0.39	0.99
Golden	0.41	1.29
Grayling	0.41	1.85
Kokanee	0.34	1.35
Atlantic salmon	0.24	1.42

ACKNOWLEDGEMENTS

Ashton hatchery personnel wish to thank Joe Chapman and the crew at Deadwood Reservoir for taking the 410,000 kokanee eggs that were shipped to Ashton.

LITERATURE CITED

Kindschi, Greg A. and Frederic T. Barrows, 1989. Diets for the Intensive Production of Montana Arctic Grayling. U.S. Fish and Wildlife Service, Bozeman Fish Technology Center, 4050 Bridger Canyon Road, Bozeman, Montana 59715.